



M415

MASS. INST. T
OCT 22 1970
DENEY LIBRARY

**working paper
department
of economics**

FEDERAL TRAINING PROGRAMS
FOR
DISPERSED EMPLOYMENT OCCUPATIONS*

BY
DAVID P. TAYLOR
AND
MICHAEL J. PIORE

Number ~~42~~⁴⁴ -- July 1969

**massachusetts
institute of
technology**

**50 memorial drive
cambridge, mass. 02139**

FEDERAL TRAINING PROGRAMS
FOR
DISPERSED EMPLOYMENT OCCUPATIONS*

BY
DAVID P. TAYLOR
AND
MICHAEL J. PIORE

Number ~~42~~⁴⁴ -- July 1969

*The material reported in this paper was collected under a grant from the Office of Manpower Policy, Evaluation and Research, U. S. Department of Labor, under the authority of Title I of the Manpower Development and Training Act of 1962. Researchers undertaking such projects under government sponsorship are encouraged to express freely their professional judgment. Therefore, points of view or opinions stated in this document do not necessarily represent the official position or policy of the Department of Labor. The authors wish to express their appreciation to Dudley Post, who provided research assistance in the printing portion of the study, and to their colleagues at MIT for their insights and critical comments.

This paper reports a study of three training programs: for tool and die makers, for offset printers, and for restaurant cooks and chefs. Each of the three programs was financed by the federal government under the Manpower Development and Training Act of 1962. All of the programs provided training for labor shortage occupations. All were, in addition, sponsored by multiestablishment organizations: employer associations in the case of the tool and die and the cooks-chefs programs, an employer association in conjunction with a trade union local in the case of the offset printers program. The multiestablishment sponsorship was derivative of another shared characteristic of the programs: employment in the crafts for which they trained is dispersed over a large number of establishments each of which is small in relation to the total market. This last characteristic was the basis upon which the programs were selected for study.

A considerable portion of occupational training in the United States is known to occur on the job under employer sponsorship and supervision.¹ This is true generally; it is particularly important in blue-collar occupations. Federal manpower programs, reflecting the increasing awareness of this fact by policy makers, have moved toward greater emphasis upon subsidies to employers to provide training in their own establishments.² Since employers are already providing a good deal of such training on their own, federal programs of this type are beset by the danger that the government will simply absorb the cost of existing training efforts: the programs will then make no net contributions to the pool of trained manpower.³

This danger appeared least acute in the case of occupations with dispersed employment. Because each employer is small in relationship to the market, he could expect to meet his labor needs by pirating from competitors and would therefore lack an incentive to train his own workers. Correspondingly, the difficulty of preventing his competitors from pirating workers which he did train

should deter reliance upon training as a means of adjustment to labor shortage. These considerations lead one to expect an underinvestment in human capital in dispersed employment occupations relative to occupations where employment is concentrated in one or a few establishments and a high potential payoff to federal training efforts in the former category. It was initially thought, therefore, that a study of the returns of such a program would provide a benchmark against which to compare the returns in other programs where the problems of assessing the program's net contributions were more difficult.

It became apparent, however, that despite the dispersion of employment in the occupations studied, there were strong endogeneous patterns of manpower training and utilization. The existence of these patterns made it impossible to assume that the training offered by the federal programs was net; it raised again the question of whether federal financing substituted for private efforts which would have occurred in its absence or, more generally, how in fact such substitution is to be avoided in the design and administration of the programs. These questions became the central focus of the study and the body of this paper is directed at answers to them. The paper is divided into two sections. The first section describes and attempts to explain the endogenous training patterns in the occupations studied and the problems which these patterns pose for evaluation. The second section details the forces which led to the financing of the particular programs under study, and discussed, in the light of these forces and of the endogenous training patterns, the problem of insuring that the funds make a net training contribution.

I. Endogenous Training Patterns in Dispersed Employment Occupations

Two endogenous patterns of training emerged in the dispersed occupations under study. First, as in occupations with concentrated employment, a number of individual employers organized training programs of their own. The second pattern, not noticeable in industries with concentrated employment, was one in which the worker took the initiative, programming his own training by movement from job to job in search of new experience. Because of its novelty, this second pattern receives disproportionate attention in what follows. It predominated in the cook-chef training: there were virtually no employer-organized training programs in the restaurant industry. In the industries which employ tool and die makers, the trainee-programmed pattern coexisted with employer-organized training. The latter pattern predominated in printing.

Employer-Organized Training

The employer-organized training for printers and for tool and die makers did not differ in essentials from training patterns, which other studies have documented, in large enterprises with extensive internal labor markets.⁴ The training takes place largely on the job in the process of production. Experienced craftsmen or line supervisors serve as instructors communicating the required skills orally and by demonstration to the trainee who then perfects them through repetition in the performance of his productive responsibilities. The learning process is often programmed automatically by a line of progression, the employee moving by promotion through a sequence of jobs which build an increasingly complex and diversified set of skills. Alternatively, the supervisor programs the learning process by assigning the trainee a progression of tasks which build his skills in a manner analagous to job progression. Training in the process of production is sometimes preceded by what is called vestibule training. The

essential difference between this and other on the job training is that the demonstration and practice occur in a formal setting established specifically for training purposes.

Both the printing and the tool and die programs closely followed the standard on the job training patterns. The offset printing training was basically a vestibule program. The tool and die program combined an initial ten week vestibule program with a second phase of training in the process of production. In this second phase, the trainee was hired by employers who agreed in advance to make special training efforts. For this, they received a small subsidy. The employer efforts were overseen by a trainer-coach under a system similar to that employed in the restaurant program and described in detail below. The tool and die program also provided, during the ten week vestibule stage, some formal classroom instruction in math, physics and tool management. Under normal circumstances, tool and die makers acquire their math and physics in trade school or through correspondence courses; upon rare occasions, it is offered in employer sponsored classes.

Because the endogenous training patterns so closely resembles the patterns in occupations with concentrated employment, the programs in printing and tool and die faced the double dilemma of federal programs in concentrated occupations. If the programs operate independently of employers, who control the allocation of labor in the industry, they may end by providing training which the worker is barred from utilizing. If the programs are too closely intergrated with existing systems of training and allocation, however, they may end by financing training which the employer would otherwise have paid for himself.

The offset printing program managed to get caught on both of the horns of this dilemma. The program was designed to train journeymen letterpress operators

for offset work. With one exception, it was conducted independently of employers. Most trainees were recruited directly by the unions. They attended on their own, in many cases without their employers' knowledge, and as a result, no use was made of the training once it was completed. Only 10 of 29 respondents in a survey of three classes of the program, were utilizing the training with any degree of regularity. Of these 10, moreover, two had been offset pressmen before entering the course, two became vocational high school teachers, and one had been able to utilize the training only after opening his own shop.⁵

The one close employer link was with the company whose facilities were leased for the program and whose supervisors were hired to conduct it. Eight of the employees of this company were among the program trainees, and the company president admitted that in the absence of federal financing, it would most likely have provided the training on its own.

Since a portion of the tool and die industry is characterized by high turnover and worker-controlled labor allocation, the program in that industry managed to avoid the problems generated by independence from employers. It did not, however, totally avoid the second problem. At least two of the large companies hiring program participants sent their own employees into the program and, hence, appeared to be utilizing it to obtain training which they would otherwise have provided in-house. Unfortunately, the response to the mail questionnaire for this program was poor, and it was impossible to determine the full extent to which federal financing was substituting for private funds.

Given the essential similarity between training in these occupations and training in occupations with concentrated employment, such failings are not surprising. The more interesting analytical problem is the existence of the similarity in the first place. Its existence implies that our initial presumption that the concentration of employment was the prime determinant of employer

sponsorship was naive. A contrast of the printing industry with the restaurant industry in which employers did not sponsor training suggests two additional factors. The most important of these appears to be specialization of equipment.^{5a} In the printing industry, where employers sponsorship predominated, shop equipment tends to have peculiarities which render efficient operation a relatively specialized skill. As a result, most workers can not move easily from shop to shop; turnover is low; and employers can generally expect a return to investment in training.⁶ In contrast, the restaurant industry where employers typically do not sponsor training, does not have specialized equipment; almost all kitchens use roughly the same utensils and machinery; training is, therefore, general and the employer attachment of the labor force is low.⁷

A second factor of some importance in determining the pattern of training is the degree to which internal lines of progression are feasible. Most printing establishments are large enough to differentiate jobs in a way which enables workers to learn parts of one job while performing a job below it in a line of progression. The typical restaurant is too small to divide its work in this way: there is not enough work at each skill level to keep a man busy full time. The exceptions in printing appear to confirm this hypothesis. Unusually small shops place a higher premium upon trade school graduation than their larger competitors, apparently because the lower steps in the natural line of progression are lacking. In the restaurant industry, the exceptions are not so easily reconciled with the hypothesis. One restaurant in the study relied heavily upon internal training and promotion from within. Its kitchen, while among the larger of those studied, was considerably smaller than the kitchens of several hotels which did not rely upon internal promotion. It appears, however, that the discrepancy can be attributed to differences in turnover patterns. Hotel

turnover is raised by interior working conditions (irregular hours, notoriously intense heat and production pressures) to levels which prohibit reliance upon internal progression. Conversely, turnover in the restaurant relying upon internal progression was dampened by its reputation as the region's most fashionable eating place.

Tool and die, because it exhibits both the restaurant and the printing patterns, might have proved the most fruitful source of insights into the determinants of training. Interpretation is complicated, however, by the fact that establishments hiring tool and die trainees did not compose a single industry. Nonetheless, for the establishments as a group, three factors appeared responsible for employer sponsorship of training. All three were exhibited by establishments which were absolutely large (75 or more employees) although arguably this was coincidental. First, large units tend to provide the fringe benefits, seniority rights, and prospect of employment stability which reduce turnover and, hence, enable the employer to capture the returns to training which he provides. Second, some large establishments, although they employed only a small number of tool and die makers, had a very large number of machinists. This permitted the development of a certain degree of progression leading into the tool room. Finally, there was some indication that in establishments producing long runs of standard products, the tool and die makers become narrowly trained. Their skills are not, therefore, readily transferable. Turnover is thereby reduced, and the employer sponsorship of training encouraged.

Worker-Programmed Training

The second training pattern which emerges in dispersed employment industries is worker-programmed training. This pattern is most readily described and analyzed in terms of restaurant cooks. With certain exceptions noted below, the training of tool and die makers, when it was not employer sponsored and controlled, followed a similar pattern.

The first and most fundamental characteristic of cook training is that it is worker programmed. The individual can program his own on-the-job training through frequent job changes, remaining in one establishment so long as he has something to learn there, moving on when the job is no longer instructive. Sometimes the movement is vertical, involving heavier responsibility, more skill, or better pay and/or working conditions. But lateral moves, motivated solely by the exhaustion of learning opportunities or the search for higher quality instruction, are also frequent. These worker-initiated job changes generate the kind of exposure to tasks and skills provided elsewhere by movement along an internal line of progression or supervised rotation of work assignments. The training on the job is supplemented by formal institutional instruction in the culinary arts (e.g., baking, haute cuisine, meat cutting, tallow carving, and the like) obtained, for the most part, from specialized proprietary schools. The courses are not standard; the trainee must piece together his curriculum from a variety of different schools. Some of the chefs interviewed for this study appeared to have attended classes intermittently over ten or fifteen year periods. Again, the individual seeks out and evaluates for himself formal educational opportunities which, in concentrated occupations, are frequently provided by the employer and almost always pre-screened by management and brought to the worker's attention by his supervisor.

The shift in the locus of initiative and responsibility for training may be viewed as an instance of a more general phenomenon: the degree of active responsibility for the organization of the labor market and the deployment of the work force assumed by institutions on the supply side of the market increases as the employing institutions fragmentize. Thus, for example, trade unions in large, oligopolistic enterprises tend to be essentially passive, operating to restrain or compel managerial activity. Their role contrasts sharply with that of unions in dispersed industries like garments or construction where the union is an active agent engaging in such activities as the management of health and pension funds, the operation of hiring halls, and the provision of consulting services on subjects which elsewhere are closely guarded managerial prerogatives. The employer sponsorship of training in the garment industry -- or in printing and parts of tool and die for that matter -- indicates that degree of fragmentation is not the only variable governing the distribution of market functions between the institutions of demand and those of supply. The role of fragmentation is nonetheless instructive: it suggests that other institutions on the supply side may be able to substitute for the worker, assuming the task of programming training when employing institutions abrogate the responsibility. A more extensive study -- one, for example, that included construction occupations where the union does assume part of this task -- might have destroyed the strict dichotomy between worker programming and employer programming which emerges here.

When, as in the restaurant industry, however, other institutions do not assume this task, the training process places an enormous burden upon the individual. Advancement is not a function of the particular jobs which people hold; the potential chef holds many of the same jobs as the perpetual kitchen helper. But the would-be chef, unlike the kitchen helper, is alert to learn; he is, moreover, continually evaluating the learning potential of his present position and, when

that potential has been exhausted, he is prepared to move to another establishment. For this, and in the search for and selection of formal courses to supplement training on the job, considerable motivation, initiative and enterprise are required. The supply of trained labor will thus depend heavily upon the number of workers possessing such traits, and workers who lack such traits will be penalized more heavily in terms of advancement than in other sectors of the economy.

A second contrast between the training of cook-chefs and that of skilled workers in occupations whose employment is concentrated is in the distribution of the cost of formal instruction. Would-be cooks must bear the cost of formal instruction directly. In occupations where the instruction is provided by the employer, the trainee bears the cost either not at all or only indirectly in the form of earnings below those available to him in alternative employments. This shift in the cost burden probably tends to exclude from cooks' training workers who lack command over financial reserves and are unable to divert income from consumption. The bias against such workers is probably most pronounced relative to jobs in which training is employer-specific, i.e., of no value outside the establishment which provides it. Because his training is useful only in his current job, the specifically trained worker can obtain only an unskilled job on the open market. To deter turnover, an employer would have to offer such a worker a wage above the unskilled rate, but he could still pay a wage below the worker's marginal product. And the difference between the wage and the marginal product should serve as an incentive for the employer to invest his own resources in the worker's training. When the training is not employer-specific and can be utilized in a variety of competing establishments, it is widely believed that the employer, because he expects competition to drive up the wage of trained employees until all returns to training are absorbed, will shift the cost of

training to the worker.⁸ The worker must thus forego current income to gain access to training and this should act, like tuition charges, as a deterrent.

The direct tuition charges probably create a bias against those without financial resources, however, even relative to jobs where the cost of training is ultimately shifted to the labor force. This is so for at least two reasons. First, some workers find it easier to forego present consumption if income is deducted at its source than if the family must forego spending the income once it has it in its hands: for these workers, training costs which are feasible when they are borne indirectly through foregone earnings are intolerable when, as in the restaurant industry, they must be paid out of pocket. Second, a critical variable in the decision to invest in training is the rate of interest. This determines the cost of financing training through borrowed funds. It also indicated the returns to alternative investments. The higher the rate of interest faced by the individual, therefore, the less likely he is to engage in training. Business firms generally have access to funds at interest rates significantly below those available to the labor force. Thus, even if they pass on the cost of training to the worker, their financial intermediation reduces the cost of training below its level when it is borne by workers directly. Because this effect depends upon the interest rate faced by the individual, it is an inverse function of the individual's income, savings, and real estate assets.

The importance of these factors in curtailing the supply of cook-chefs depends, of course, upon the relative importance of formal instruction in the development of cooks. This cannot be gauged with precision. The 1963 Labor Department Survey of occupational training found that 13% of all cooks reported formal training among ways in which they had learned their job, and 5% (nearly 3/5ths of whom were trained formally in the army) reported formal training the most helpful way.⁹

These figures are not large; they imply that even where formal instruction is important, it is secondary to on-the-job training. On the other hand, the total includes a large number of short-order cooks and cook's helpers. The experienced cooks and chefs interviewed in the present study indicated that in the courses of their careers they had attended a variety of cooking classes. Such classroom work may be critical to advancement toward the higher levels of the profession.

Cooks' training might conceivably differ from employer-sponsored training in a third respect: the nature of the on-the-job training process and the distribution of its costs. Such differences, however, were less apparent. The essential nature of the process remains the same: skills are absorbed in the process of production by the observation and imitation of experienced craftsmen and are perfected, again in the production process, by repetition. The costs of such training include any reduction in the productivity of the chef and his assistant (who is the trainee), wasted raw materials, equipment downtime and damage, and substandard output. The costs are, in other words, reflected in the costs of production. They must thus be borne, in the first instance by the employer. If the trainee is to bear them, they must be shifted to him.

There is reason to expect a shift to occur. The high turnover among restaurant employees, which is critical to the training process, also makes it unlikely that the employer can capture the increment to productivity which results from training. That increment cannot therefore serve to remunerate the employer for the costs incurred during the training period, and he would be unlikely to tolerate such costs unless the workers who impose them compensate by accepting wages below the market level.

A shift in training cost is to be expected for a second reason as well. Not all chefs are equally good instructors. Under some men, a good deal of training

occurs; others provide very little instruction at all. Clearly, for those wishing to progress in the industry, positions under the former are preferred, and competition for them should force their wages below the market rate.

Such wage differentiation should serve the additional purpose of driving non-learners, who cannot anticipate higher future earnings as a return to current wage sacrifices, from good training positions. This is important because those working in subordinate kitchen positions range widely and include many with no permanent attachment to the restaurant industry and no interest in learning the chef's trade. The preemption by such people of training positions carries an opportunity cost, and wage differentiation which discourages such preemption performs a social function. The function, it may be noted, bears no relation to the costs which training imposes upon the employer. The argument implies that it would be desirable to have good training positions pay below market rates even if training were costless, and, in fact, there is no necessary reason to expect wage differentiation produced by the competition for positions under teaching chefs to correspond to the differentiation required to compensate the employer for training costs. A wage differential at least sufficient to cover training costs should be produced by the employer's reluctance otherwise to tolerate the training. But the differential might exceed this lower limit. The cost savings would then presumably be appropriated by the chef whose tutelage is so greatly desired.

Several chefs trained abroad spoke of the European market as if it operated (or at least had operated) more or less in this way.¹⁰ Certain restaurants were known throughout the continent for their great chefs; cooks trained in these kitchens commanded premium pay; and ambitious youth were willing to make sacrifices to work in their kitchens. But there was little indication that the market for

chefs operated in this way in the area of the present study. Restaurant workers were able to distinguish between the quality of instruction in the kitchens where they had worked, but they did not possess broad knowledge of training opportunities in the area. The expected wage differentiation was not present: learners and non-learners received roughly the same pay for equivalent work.

Several factors appear to explain the failure of wage differentiation to occur. First, it is not clear that there is a net cost of training to be transferred from the employer to the trainee. Much of the training process is free: opportunities for observation and practice are present in the job whether or not the incumbent takes advantage of them and there is no added cost to his doing so. Efforts of the chef to aid the learning process, which might be expected to add to the cost of production, appear to depend largely on his personal style of operation. One of the respondents, for example, described a chef who was so secretive that he sent all of the kitchen help on fetch-and-carry errands before he made a sauce. The good instructors, in contrast, operate naturally in an open manner, talk about what they are doing as they work, readily delegate responsibility and encourage those around them to accept delegation. These characteristics would seem to have more to do with the personality traits of the man than with a deliberate decision to train or not to train. Short of discharging one chef and hiring another, therefore, there is probably relatively little the employer can do to expand or contract the amount of instruction which occurs. The employer can, of course, discharge the chef. It is not clear, however, that the personal styles most conducive to training are inherently less productive than styles which are not. And, in fact, given the relatively small size of the kitchen, the dominant position of the chef within it, and the close working relationship between the chef and the manager (who is sometimes the owner

as well), the amount of instruction provided subordinates is probably one of the lesser of the cost variables which the chef's personality traits affect.

An analogous argument can be made with respect to the subordinates whom the chef trains. In fact, the burden which the requirements for successful advancement in the restaurant industry place upon the individual implies that learners will have motivation and drive which, other things being equal, will make them considerably more productive than non-learners. The difference in productivity may be enough, even more than enough, to compensate for the added cost of the learning in which they engage.

At best, however, this line of reasoning will explain why employer efforts to escape the burden of training costs does not generate wage differentials. It does not explain the failure of competition for positions under good teaching chefs to produce differentiation. Here, two other factors may be operative. First, it is possible that there are simply not a sufficient number of motivated individuals seeking instruction to make competition operative. There may be, in other words, more than enough learning positions for those who desire to learn.

A second explanation, not necessarily exclusive of the first, is a paucity in the market of information required to evaluate the merits of alternative positions. The inadequacy of such information was suggested by the tendency of very enterprising individuals to speak of good learning positions as if their discovery was largely a matter of luck. Such an explanation is rendered plausible by the complexity of the information which existing channels must carry and the variety of possibly offsetting job characteristics for which wage differentials compensate. The quality of instruction is not the only factor which distinguishes one kitchen from another; there is also wide variation with respect to working hours, opportunities for overtime, the heat, the excitement of the job and the

pressure under which it is performed. Even instruction is not of a piece. Individuals do not generally acquire all of their skills in one kitchen: a given kitchen may be a good place to learn at one stage in a cook's development but not at another. Instruction, moreover, is to some extent individual, in the nature of a tutorial between the chef and his subordinate: it occurs in a kitchen at meal hour under great pressure and intense heat; and the personality of the chef and his student may thus come to be decisive as to whether or not learning occurs. To the extent that this is the case, an efficient matching of students and teachers requires the circulation of an amount of information that any system would be hard pressed to provide.

In sum, then, the worker-programmed pattern which predominates in the training of restaurant cook-chefs is distinguished by (1) the motivation, initiative and enterprise required by the individual worker, (2) the direct cost burden of formal institutional instruction which it places upon the trainee, and (3) the importance of the diffusion of information and of wage differentiation in matching good teaching chefs with subordinates who will profit from exposure to them.

A strong argument can be made that, at least in the labor market where the present study was conducted, these characteristics lead to an underinvestment in cooks' training relative to the employer-sponsored training in other occupations. Indicative of underinvestment is the failure of the expected wage differentiation to materialize. That failure implies either an absence of information flows and chef-subordinate matching required for efficient operation of the market or an excess training capacity within the industry, i.e., more than enough teaching chefs to meet the demand of workers seeking instruction. The former points toward governmental intervention to facilitate information flows and improve the matching process. The latter is not in itself sufficient to warrant governmental

intervention. The excess supply of teachers over students could result from real social costs which make cooks' training less desirable than training for other occupations. However, the motivational attributes and the resources required of would-be cooks but not of trainees in occupations where training is employer-sponsored give reason to believe that some of the factors restraining the supply of cook trainees are the incidental result of market organization and would be overcome, at relatively little cost and with some net social benefit, by governmental intervention.

Current concern for the economic progress of disadvantaged, and particularly of black, workers strengthens the argument for federal intervention. It is precisely these individuals that are least likely to possess the motivational traits required for progress in the restaurant industry. They are, however, disproportionately represented among restaurant cooks. The restaurant industry, moreover, has a tolerance for the instability of disadvantaged workers lacking in concentrated industries with well-developed internal labor markets. And the apparent shortage of cooks combined with the high turnover and relative ease of upward mobility that turnover implies should make it possible for individuals to progress without appearing to threaten the position of those directly above them on the socio-economic ladder.

The cook-chef training reviewed for this study appeared, in the light of these considerations, well designed. The program consisted of two basic components: a ten week period of full-time classroom instruction (during which the trainee received a stipend, which most trainees supplemented by part-time work before or after school), succeeded by forty weeks of training on the job. During the second phase, the class also met in the evenings once a week for additional classroom instruction.

The bridge between the classroom and on-the-job components, and in fact the pivot around which the whole program revolved, was the trainer-coach. The coach served as instructor in the classroom phase; he then solicited the on-the-job training slots and placed the individual trainees. The on-the-job instructor was provided largely by the enterprise's own chef, and participating restaurants were paid \$12 a week per trainee to free the chef's time for this purpose. But the coach regularly visited the trainee at the job to supplement the chef's instruction and to counsel the trainee and, occasionally, his supervisor. When a trainee had exhausted the opportunities for instruction in one job, or when irreconcilable conflicts between the trainee and his supervisor arose, the trainer-coach found the trainee a new position. The trainer-coach thus played the role of the employer in the employer-sponsored training pattern, substituting for the motivation and enterprise which would otherwise be required of the trainee. The coach also substituted for the role which wage differentiation ought ideally to perform, channelling information about potential trainees and instructors and insuring that the proper marriage between them occurs. The classroom portion of the program operated to alleviate the third burden which worker-programmed, relative to employer-programmed, training places upon the trainees, that of the direct cost of training. The classroom instruction also alleviated for the trainee the burden of finding such programs on his own in proprietary schools and community colleges. The only component of the program which does not appear to make sense in terms of the deficiencies of the industries' endogenous training patterns is the wage supplement paid to the employers. As was seen above, wage differentiation does not appear to be required to compensate for the cost of on-the-job instruction nor does it occur. Most employers questioned on the subject seemed to feel the supplement was irrelevant. One manager reported that the supplement upset his accountants considerably. For a while, they insisted that he place it in escrow.

While the program appeared well designed to overcome the deficiencies of endogenous training patterns, however, it does not necessarily follow that it succeeded in doing so. The services which the program offers are not only of value to workers who could not progress without them; they are also valued by people who would achieve training and advancement in the industry on their own. These people, moreover, precisely because they possess the motivation and enterprise required for success, will also be the most active in seeking out programs of this kind and pressing for admission. They have easy access to the trainer-coach who in the nature of his work circulates widely in the local labor market. If the most highly motivated are not to capture the program, therefore, the coach must be prepared continually to resist this pressure and seek out instead the unaggressive disadvantaged workers who are not likely to apply on their own. It was clear in the restaurant programs -- and in the tool and die program, which followed a very similar format, as well -- that the coach had not fully succeeded in screening out candidates capable of making it on their own. The most conspicuous failure in this regard was a participant in the program who was, in fact, the chef in a large cafeteria, who employed a second trainee as his assistant, and who was avowedly interested in the program for the formal instruction it provided. Other less extreme cases could be cited.

Counter-examples of trainees who did not seem to have sufficient internal resources to succeed on their own (for whom success without the aid of the program is dubious) can be also cited, but, whether on balance these are sufficient to outweigh the numbers on the other side and to provide justification for the programs is a moot question. It is not, in fact, clear how such a determination can be made. It was initially thought that a control group could be used for this purpose. But the correct control is not apparent. Use of trainees in a

non-sponsored program -- the control group planned in the original project proposal -- is clearly not feasible; there is no such program. A random sample of the present population of chefs is one alternative; but since, in the past, the industry has drawn more heavily upon Europe for training than it appears possible for it to do in the future, the current group of chefs will not reveal the character of those who will autonomously enter the occupation in the future. A random sample of restaurant workers from whom the supply of new chefs must be drawn appears to provide a better control. But it was apparent from interviewing the trainees that no obvious, easily measurable attributes would be appropriate to distinguish those who would have made it on their own. The critical variable is enterprise and motivation. The trainees with the most obvious enterprise and motivation possessed those external characteristics loosely used as a proxy for lack of these traits, i.e., race and parental background. And, because neither of the investigators were psychologists, no finer psychological measures were attempted. Instead, a second fix upon the programs was attempted: an examination of the institutional environment in which they operated and of the incentives present in that environment to orient the programs in the socially desirable direction.

II. Motivation of the Sponsoring Institutions

The preceding section suggests that the three training programs were under great pressure to support the endogenous training patterns of the occupations studied. It was clear that, to some extent, at least, the programs succumbed to this pressure, and to the extent that they did so, they simply substituted for training which would otherwise have been privately executed and financed. Whether, nonetheless, the programs made some net contribution to training is a moot question: it was not possible to answer this question from the data gathered in the studies, and it is not clear exactly what kind of data would permit definitive judgments on this issue.

An alternative approach to this question is to examine the process through which the programs were funded and the motivation of the sponsoring institutions, for factors which are likely to lead the programs to resist (or accede to) pressures to conform to endogenous patterns and to compel them to extend the amount of training which these patterns provide.

The offset printing program was dependent upon five institutions: the two sponsoring institutions, a trade union local and a local trade association; a local employer who rented facilities for the program and from whose supervisory force the instructors were hired; and two government agencies, the Division of Employment Security and Bureau of Apprenticeship Training whose approval was required for funding. The catalyst in the program was the union; its president was largely responsible for the organization of the program. He was avowedly motivated by concern about the fate of letterpress operators displaced by the introduction of offset printing, and this provided the rationale for the project. As noted earlier, however, there were very few displaced letterpress operators:

the market for them was exceedingly tight, and it was probably for this reason that employers preferred to train new men for offset. A more plausible explanation for the union's interest, therefore, appeared to be the hope that by training its members and placing them in offset jobs, it could establish a claim to jurisdiction over the whole of that process. Its claim to parts of the process, particularly the plate making and stripping, was otherwise tenuous.

The union contacted the firm who provided the instructor and facilities through the regional graphic arts institute. The firm was at the time converting some of its letterpresses to offset, and it was this apparently that led the Institute to recommend it to the union. The firm's management frankly admitted in interviews that it was attracted by the prospect of federal funding for training which they would otherwise have had to finance themselves. Their one condition for participation was that they be given freedom to choose those from their company admitted to the program. The idea of seeking MDTA funding -- and, in fact, the whole program format and content -- derived from an earlier federally funded program run by another local of the international union in Oakland, California. The two proposals are almost identical. The fact that they were so similar greatly facilitated the task of obtaining approval from the required government agencies. These agencies relied heavily upon the precedent of the California programs in assessing the soundness of the curriculum and the budget. The program derived from the early phase of MDTA when it was chiefly concerned with automation and structural unemployment: the fact that a technological change was involved was compelling. A last requirement for approval was certification by the Division of Employment Security of the existence of a shortage of offset press operators.

In the tool and die program, the institutions participation included the trade association, which sponsored the program, the employers who hired the trainees during the OJT phase, and, again, the Division of Employment Security and the Bureau of Apprenticeship Training, whose approval was required for funding. The central figure in the development of the program was a classic Schumpeterian entrepreneur (known in the trade as an operator). He originated the trainer-coach format, sold the idea to the regional tool and die association of which he was the executive director, and in his capacity as executive director, hired his own consulting firm to set up and run the initial program of twenty trainees. The trade association, subcontracting through the consulting firm, subsequently established tool and die training projects funded by MDTA in several cities in the region. The tool and die program included in the present study was one of these.

The entrepreneur who sparked the program was obviously attracted by the federal funding. Some of the larger cooperating companies were also attracted by the federal funds which substituted for funds of their own which would otherwise have been devoted to training. Several smaller employers may have been induced to cooperate by a sense of duty to the craft and the industry. The trainer-coach displayed considerable eloquence on this subject some of which was reflected in the comments of participating employers. Many of the smaller employers were also moved, however, by the recruiting services which the trainer-coach provided. The trade association was ostensibly motivated by the mutual interest of its members in overcoming the shortage of craftsmen, but it was also apparent that the program became a justification for the organization whose *raison-d'etre* was otherwise questionable. Approval by the government agencies was greatly facilitated by the fact that they were presented with a

standard format which they had previously endorsed a number of times. Indeed, there is a sense in which previous endorsements made it impossible to refuse a request to extend the program. Such a refusal would have called into question the judgment of colleagues and superiors responsible for funding earlier programs, and the officials making such decisions were not in a position to collect the evidence necessary to sustain such an action.

The cook-chef program was developed by the same entrepreneur who promoted the tool and die program, and it is probably best understood as an attempt to extend his range of operations by capitalizing upon the tool and die experience. The restaurant association, which nominally sponsored the tool and die program, was organized by the entrepreneur for this purpose. (It subsequently branched into the training of waitresses). The association hired the entrepreneur as its executive director, and subcontracted the training to the entrepreneur's firm. Like the tool and die program, the cooks' training program included in this study was one of several regional offshoots of a project begun on a very small scale in the entrepreneur's home town. The restaurant activities of the entrepreneur made use of the contacts within the U. S. Department of Labor and of the extensive knowledge about how to promote training programs within that bureaucracy which had been developed in connection with the tool and die program. They also benefited from experience gathered in the tool and die industry with training in general and with the use of the trainer-coach format in a dispersed employment industry in particular. For the government agencies involved, familiarity with the training format and with the personnel of the sponsoring organization facilitated the approval of the initial contract; approval of subsequent programs was facilitated by the fact that the first had been approved. For the government, and for the promoter, a cooks' program had the additional advantage of operating

in an industry that employed large numbers of minority group members at a time when federal officials were placing increasing emphasis upon this goal. The restaurateurs were attracted to the program (and to the association) by the recruiting services of the trainer-coach.

The preceding synopsis makes clear that the individuals and non-governmental institutions participating in the training programs under study had no intrinsic interest in resisting pressure to support the endogenous training patterns; some were in fact themselves the source of such pressure. Under these circumstances, resistance, if there is to be resistance, must be generated by the federal agencies through the process of funding and review.

The federal agencies in the present instance failed to generate such pressure. Their attention was confined to the certification of a shortage in the occupation for which training was provided and a review of the training procedures and concomitant costs. Attempts were not made to insure that the training would actually serve to supplement endogenous patterns, and not substitute for them. A partial exception was the emphasis in reviewing proposals upon recruitment of the disadvantaged. This emphasis appears to have had an effect upon the orientation, at least, of the restaurant program. Unfortunately, the criterion "disadvantaged" -- or, at least, the group of variables used to define it -- was not very sensitive to the distinction between those where progress in the industry required the assistance of a special program and those with the motivation and drive required to progress on their own. The latter were not, therefore, effectively screened out.

The generation of resistance to pressure to conform to existing training patterns is not solely a question of intent. A set of criteria which will effectively distinguish -- either for purposes of program design and administration

or in assessing the results of a completed project -- institutions and individuals who would not have become engaged in training autonomously is not obvious. The straight-forward approach is to ask participating individuals if the program affects their basic training decision and exclude those who say no. The approach clearly creates a tremendous incentive for people to lie. The fact that several firms in the present study answered negatively is probably indicative less of their intrinsic honesty than of the absence of pressure within the programs to avoid the windfall that an affirmative answer implies.

Without the cooperation of the individuals involved, a considerably more elaborate test is required to screen out those who would have trained on their own; some kind of psychological and motivational test for the labor force in occupations where training is worker-programmed; an elaborate typology for firms in industries where employer-sponsored training prevails. It is possible that psychologists have developed instruments capable of the required distinctions between individuals. But economists are nowhere near the development of instruments that will make the required distinctions between firms.

A partial substitute for the explicit objective tests of the social scientist is the "smell" test of a person who has grown up in the industry. Those who really know a given industry seem to be able to tell when people within it are being moved to depart from established practice and procedure. Such judgments are not neat and clear; the reasoning which underlies them cannot always be verbalized, and even where the reasoning is explicit, the evidence required to support it can seldom be mustered. An agency accountable to the public has a limited capacity to base its decisions upon criteria of this kind. That capacity which it does have might, nonetheless, be sufficient to create the requisite pressure upon the programs. A policy of this kind necessitates at least one

expert on the agency staff for each industry involved in training: a good sense of "smell" in more than one industry is a very rare attribute.

Elaborate tests involving large, specialized staffs, are, however, deterred by the procedure through which the programs are funded. Projects of less than \$50,000 are approved through the local office of the BAT without regional or national review. Each of the projects studied fell below this ceiling. The printing program costs roughly \$15,000, the tool and die project, about \$20,000, the cooks project, about \$35,000. The cost of prefunding investigation, therefore, quickly escalates toward the cost of the project, and elaborate procedures cannot be justified. The local office, quite rightly from its perspective, relies upon a cursory review and places great weight upon the precedent of similar contracts funded elsewhere, which serves as a cheap proxy for more expensive measures of program soundness. Post-project evaluations are also deterred. The local office tends to view projects as isolated instances which do not survive to benefit from whatever evaluations might uncover. In fact, however, many of the projects are not isolated instances but part of a national network which, in the case of the offset press program, included at least one other project and, in the tool and die and cooks cases, a very large number. At least nineteen cooks' projects, for example, had been completed before the project in this study was begun. All three programs studied were, moreover, repeated several times at the same sites, and for the pressmen and tool and die programs, each repetition involved a separate contract. Only for the cooks' training were the series of projects eventually consolidated in a single large regional contract which attracted national attention and justified an elaborate investigation, and by the time it was consolidated, the number of projects funded separately in this industry, and in tool and die may have been sufficient to

deter really dispassionate review. Thus, even were it feasible to develop criteria which effectively distinguished new training opportunities, it is not clear that existing review procedures could make use of them.

Finally, there remains the question of whether, given criteria which distinguished individuals and institutions who would engage in training on their own and an administrative procedure which applied the criteria effectively to preclude their participation, the non-governmental institutions now participating in the program would continue to do so. In the cooks and tool and die programs -- we would like to argue more broadly, in those occupations where training is worker-programmed and the program utilizes a trainer-coach -- continued participation appears likely. For the entrepreneur who organized these programs the attraction was partly the excitement of the game, partly the game's reward. The new rules would leave both. In fact, the recruiting services of the trainer-coach which attracted employer participation would also remain. Training as a *raison-d'etre* for the trade association would continue as well -- although the trade association appears important chiefly as a vehicle for the entrepreneur and one would think a clever entrepreneur could find substitutes for it.

Footnotes

¹U. S. Department of Labor, Formal Occupational Training of Adult Workers, Manpower/Automation Research Monograph No. 2, December 1964. Table 11, pp. 43-45.

²For a summary of this evolution, see U. S. Department of Labor, Manpower Report of the President Including a Report on Manpower Requirements, Resources, Utilization and Training, January 1969, U. S. Government Printing Office, pp. 89-95.

³The program may, of course, be justified on other grounds. Federal intervention might, for example, lead to a more equitable allocation of job opportunities or a more equitable distribution of training costs. The former has, in fact, been an explicit goal of recent policy. Were the redistribution of existing costs and opportunities the only goals of federal policy, however, they could probably be attained more efficiently through other measures. And, indeed, one of the chief attractions of federal training programs as a redistributive measure is that it appears possible to avoid the social conflicts which other methods of redistribution entail: the redistribution can be financed by the added productivity which the beneficiaries acquire through training rather than through a reduction in the income levels of other members of the labor force. This characteristic of redistribution through training will be realized, however, only if its contribution is net.

⁴See, for example, U. S. Department of Labor, Work Force Adjustments in Private Industry -- Their Implications for Manpower Policy, Manpower/Automation Research Monograph No. 7, U. S. Department of Manpower Administration, Reference to other literature on this subject is contained in this document.

⁵A major difficulty was that letterpress operators were also in short supply and employers preferred to train an offset press operator from scratch rather than lose a letterpress operator.

^{5a}This may be understood in terms of the relationship between specialization and the specificity of training. Training on specialized equipment tends to be employer-specific, and this, as Gary Becker has pointed out, gives the employer an incentive to sponsor training. Gary S. Becker, Human Capital, (National Bureau of Economic Research: New York, 1964), pp. 18-29.

⁶Thus, for example, of the 29 pressmen responding to the surveys, 13 had worked for their present employer since they became journeymen; 18 had spent at least half their journeymen's career with a single employer; all but 9 had spend at least half their journeymen's careers with two or less employers. The median number of years as journeymen was 16; the median years with present employer was 9.

⁷In the restaurants visited for the present study there was one exception, discussed below, where workers apparently entered as kitchen helpers and progressed to chefs. While outsiders could be hired into chef positions, most of the top staff had been trained internally. Highly specialized restaurants (e.g. Serbian or Phillipine) although not among the establishments in the present study might also constitute exceptions.

⁸Becker, op. cit. pp. 8-29.

⁹U.S. Department of Labor, Formal Occupational Training of Adult Workers, op. cit.

¹⁰cf. Barbara la Fourtain's article on Master-chef Fessaquet in the New York Times, September, 1968, Sec. VI, p. 8.

